



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/752,661	01/06/2004	Paul D. Bradley	10010890-5	4120

7590 12/30/2005

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

NGUYEN, HA T

ART UNIT PAPER NUMBER

2812

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/752,661

Applicant(s)

BRADLEY, PAUL D. 

Examiner

Ha T. Nguyen

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 7-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

HA NGUYEN
PRIMARY EXAMINER

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Notice to applicant

1. Applicant's Amendment and Response to the Office Action mailed 7-14-5 has been entered and made of record.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ruby et al. (USPN 5873153, hereinafter "Ruby") in view of Sasaki (SUPN 6740964).

Referring to Fig. 11 and related text, Ruby discloses [Re claims 7 and 9] a method for fabricating an apparatus, the method comprising: fabricating a thin-film resonator 305-307 on a substrate 301; fabricating a metal contact 304, 307 connected to said thin-film resonator, a portion of said via metal contact in contact with the substrate to form a Schottky diode; wherein said metal contact comprises a conductive material, the examiner interprets that the via metal contact 304 inherently forms a Schottky diode with the semiconductor substrate 301 (see col. 6, lines 26-29); and [Re claims 11 and 12] wherein said thin-film resonator comprises piezoelectric portion 306 sandwiched by a bottom electrode 305 and a top electrode 307; wherein the piezoelectric portion comprises Aluminum Nitride and said bottom and top electrodes comprises Molybdenum (see col. 6, lines 29-55). But it fails to disclose expressly the metal contact is a bond pad. However, the missing limitation is well known in the art because Sasaki discloses that a via metal contact is used as a bond pad for bonding to an external device.

[Re claims 8 and 10] The combined teaching of Ruby and Sasaki discloses substantially the limitations of claims 8 and 10, as shown above.

But it fails to disclose expressly wherein said bonding pad forms a plurality of Schottky diodes with the substrate; and wherein said bonding pad comprises conductor selected from a group consisting of gold, nickel, and chrome.

However, Ruby also discloses metal used for the electrode is from Mo, Al, W, Au, Pt, or Ti (See col. 5, lines 44-47). It would have been obvious for a person of ordinary skills in the art to use the same metal to form connection to reduce material requirement, ensuring cost efficient production. Ruby does not teach the forming of a plurality of bonding pads. However, it would have been obvious to form a plurality of pads when contact to a plurality of regions is needed.

Therefore, it would have been obvious, at the time the invention was made, to combine Ruby with Sasaki to obtain the invention as specified in claims 7- 12.

Response to Amendment

4. Applicant's arguments with regard to the rejections under 35 U.S.C. 103 have been fully considered, but they are not deemed to be persuasive for at least the following reasons.

Applicant argues that the examiner does not explain the basis for the inherent characteristics of the Schottky diode formed by the metal of the via contacting the semiconductor substrate. The rejection is clear enough for a person skilled in the art because the examiner does point out what form the Schottky diode and applicant only needs to match that with the definition of a Schottky diode. Note that the semiconductor substrate 301 is conductive when a voltage is applied, otherwise the contacts 303 and 304 cannot perform their functions of electrically connecting the electrodes to the substrate.

Applicants contradicts himself in stating that the examiner does not address the limitation "a portion of said bonding pad in contact with the substrate to form a Schottky diode" in page 4 then argues that "the rejection alleges ..." in the middle of page 5.

Applicant argues that the combination of Ruby with Sasaki lacks a motivation. The examiner disagreed, even though she did not elaborate on the motivation, the rejection clearly indicates that the use of via metal contact is to form bond with external device (See Office Action, page 2). Applicant also has other arguments against the combination of Ruby with Sasaki. The examiner disagrees because the rationale for modifying a reference different from the applicant's is permissible in establishing obviousness (see MPEP 2144 and cited cases

Art Unit: 2812

therein) and the expectation of some advantage is the strongest rationale for combining references (MPEP 2144), in this case to be able to form bond with external devices. Besides, note that the test of obviousness under 35 USC 103 does not require an expressed suggestion of the claimed invention in the prior art. All that is required to show obviousness is that the claimed invention would have been made obvious by applying knowledge clearly present in the prior art. *In re Rosselet*, 347 F.2d 847, 146 USPQ 183 (CCPA 1965); *In re Sheckler*, 438 F.2d 999, 168 USPQ 716 (CCPA 1971); *In re Sovish*, 769 F.2d 738, 226 USPQ 771 (Fed. Cir. 1985).

Therefore, the rejection is proper, and the combined teaching of Ruby with Sasaki does teach or make obvious all the limitations of the rejected claims 7-12.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ha T. Nguyen whose telephone number is (571) 272-1678. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM, except the first Friday of each bi-week. The telephone number for Wednesday is (703) 560-0528.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt, can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2812

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HN

12-23-05



Ha Nguyen

Primary Examiner